# T E C H N I C A L  M E M O R A N D U M

Utah Coal Regulatory Program

August 5, 2005

TO: Internal File

FROM: Priscilla W. Burton, Environmental Scientist III/Soils, Team Lead

RE: Refuse Pile Expansion, Canyon Fuel Company, LLC., Dugout Canyon Mine, C/007/039, Task ID #2156

**TECHNICAL ANALYSIS:**

# GENERAL CONTENTS

## IDENTIFICATION OF INTERESTS

Regulatory Reference: 30 CFR 773.22; 30 CFR 778.13; R645-301-112

**Analysis:**

Legal and financial information for Arch Coal mining is found in General Chapter 1, dated February 2005. The 2004 annual report states that there have been no changes to the information last reviewed under Task # 2069, Task #2104, and Task #2193.

**Findings:**

The information provided meets the regulatory requirements for legal and financial information.

## VIOLATION INFORMATION

Regulatory Reference: 30 CFR 773.15(b); 30 CFR 773.23; 30 CFR 778.14; R645-300-132; R645-301-113

**Analysis:**

General Chapter 1 provides a three-year violation history in Table 1-2 for mines related by corporate structure (listed in Table 1-1).

**Findings**

The information provided meets the requirements of the regulations.

## RIGHT OF ENTRY

Regulatory Reference: 30 CFR 778.15; R645-301-114

**Analysis:**

Right of Entry information is found in the Dugout MRP, Chapter 1, Section 114 and in Appendices 1-1, 1-3, and 1-4. Canyon Fuel Company, LLC, owns the refuse pile property (RA Vol., p. 1-4), but there is no description of the type of document, i.e. date, type of deed. The surface ownership map is found in the MRP volume 1, but it does not include information on the refuse site that is in the N1/2 of the NE ¼ of Section 18, T14 S R 12 E. This map must be updated to include the refuse site.

**Findings:**

The information provided does not meet the minimum requirements of the General Contents – Right of Entry section of the regulations. Prior to approval, the Permittee must provide the following information, in accordance with:

**R645-301-114.100,** The plan must include a description of the legal document and date of execution that provides the Permittee with right of entry.

**R645-301-521.130,** The surface ownership map is found in the MRP volume 1, but it does not include information on the refuse site that is in the N1/2 of the NE ¼ of Section 18, T14 S R 12 E. This map must be updated to include the refuse site.

## LEGAL DESCRIPTION AND STATUS OF UNSUITABILITY CLAIMS

Regulatory Reference: 30 CFR 778.16; 30 CFR 779.12(a); 30 CFR 779.24(a)(b)(c); R645-300-121.120; R645-301-112.800; R645-300-141; R645-301-115.

**Analysis:**

The legal description of the state and federal lease areas, fee coal, private land (refuse site), BLM land, and BLM right of way are provided in section 114 of the MRP. The legal description of the BLM land disturbed for the Pace Canyon fan portal and shaft is found in Appendix 1-4. Authorization to operate the refuse site within 100 ft of a county road was provided by letter from the Carbon County Road Commissioner (RA Vol. Attachment 1-1.).

**Findings:**

Information provided in the application meets the requirements of this section of the regulations.

## PUBLIC NOTICE AND COMMENT

Regulatory References: 30 CFR 778.21; 30 CFR 773.13; R645-300-120; R645-301-117.200.

**Analysis:**

Public notice for the refuse site is found in (RA Vol. Attachment 1-1). In accordance with R645-303-227, this permit amendment does not require public notice, since there is no increase in disturbed area or post mining land use change.

**Findings:**

Information provided in the application meets the requirements of this section of the regulations.

# ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

## PERMIT AREA

Regulatory Requirements: 30 CFR 783.12; R645-301-521.

**Analysis:**

The permit area encompasses 9,611 acres (Sec. 114, Plate 1-4). The permit area and adjacent lands are shown on Figure 1-1 and other maps in the MRP. A legal description of the permit area is given in Sec. 114 of the MRP.

The disturbed areas are also described in Sec. 114 and App. 1-4 and illustrated on Plate 1.4. The disturbed area is currently 56.5 acres and divided are follows:

- Mine facility area including the Gilson pad and small substation 20.31 areas.
- G-2 and G-3 degas wells 2.2 acres.
- G-4, G-5 and G-6 degas wells 2.7 acres.
- Leach field/pipeline area 1.8 acres.
- Pace Canyon Fan Portal 2.7 acres.
- Refuse pile 26.8 acres.
  [06202005]

There is no change to the disturbed area with this amendment. However, existing page 1-9, sec 114, vol 1., MRP incorporated 6/24/05 does not correctly state the disturbed acreage.

**Findings:**

The information provided does not meet the requirements of the Regulations. Prior to approval, the Permittee must provide the following information, in accordance with:

**R645-301-121.200,** MRP page 1-9 must indicate the currently approved disturbed acreage.

## PRIME FARMLAND

Regulatory Reference: 30 CFR 785.16, 823; R645-301-221, -302-270.

**Analysis:**

The land used for the topsoil storage area is owned by Soldier Canyon Mine and prior to development of the topsoil stockpiles, was leased for grazing. Soldier Canyon Mine owns the

water flowing in the irrigation ditch south of the Soldier Canyon stockpiles. This water flows downstream to Anderson Reservoir. Soils in the location of the topsoil storage site are in the map unit 53, Hernandez family, moist, 1 to 6 percent slopes. This map unit is listed as capability class IIIe-2 and is considered prime farmland when irrigated. Appendix 2B contains letters from the State Soil Scientist in March 1997 stating that, after site investigation, land immediately south of the irrigation ditch in the W1/2 of the SE1/4 of Section 25, T. 13 S. R. 11 E. was prime farmland, if a developed source of irrigation water were available.

**Findings:**

The Division in concurrence with the NRCS has determined that there is no prime farmland in the permit area.

# OPERATION PLAN

## TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

**Analysis:**

Refuse Site [05/05/05]

The triangular shaped permit area covers 26.8 acres (Sec. 114, p. 1-24). Refuse will be permanently placed on 12.25 acres. The rest of the site (14.55 acres) will either be dedicated for topsoil storage, access roads or general storage.

Location of topsoil and subsoil stockpiles is shown on Plates 5-1 and 7-1. Ambiguous statements concerning the transfer of the stockpiles should be removed from the plan in section Table 2-2 in RA Attachment 2-2 provides the estimated topsoil and subsoil volumes as 22,809 $yd^3$. [This is considerably less than the anticipated salvage volume of 44,317 $yd^3$.] The least rocky soils and most of the suitable substitute topsoil at the refuse site were those soils in map units D, E, and F. However, half of the soil salvaged came from areas B, C, and E described in RA Table 2-1 as gravelly, loam and gravelly, clay loam. Soils from areas D, E, F, K, and G were stored in the topsoil stockpile (Sec. 231.100) and soils in map units B and C were stored in the subsoil stockpile described in Sec. 231.100 and Sec. 3.4 of Attachment 2-1. The boulders (unit K) will be handled separately (Sec. 234.100). Most of the piled gravel (unit L) was moved from the site.

This application removes Plate 2-2 (soil stockpiles) from the plan, without providing a commitment to provide final storage volumes and configuration of the stockpiles in the new location.

**Topsoil Substitutes and Supplements**

Refuse Site [05/05/05]

Available cover material is described in Section 242.100 as follows:

| | |
|---|---|
| 7,298 $yd^3$ | topsoil stockpiled with berms included. |
| 15,511 $yd^3$ | subsoil stockpile with berms included. |
| 5,400 $yd^3$ | subsoil to be salvaged from beneath stockpiles during transfer to new storage location. |
| 12,900 $yd^3$ | subsoil in site perimeter berms and pond embankment. |
| 41,109 $yd^3$ | total topsoil and subsoil available. |

The plan indicates in that when the refuse is constructed as described in Plate 5-2, the refuse pile surface will measure 13.19 acres and require 85,163 $yd^3$ of cover (4 ft deep, section 242.100 and Attachment 2-2). The available soil material (described above) will cover 13.19 acres to a depth approximately 2 ft. deep. Therefore, the Permittee has proposed a test plot to demonstrate that lesser cover is adequate for reclamation of the waste (Section 242.100). Visual observation of the test plots for rillying and gullying must be included in the soil evaluations conducted in years 3 and 6 as described in the monitoring schedule.

The plan must describe a source of suitable substitute topsoil to augment final reclamation coverage over the refuse to a depth of four feet.

**Findings:**

The information provided does not meet the regulatory requirements of this section. Prior to approval, the Permittee must provide the following information, in accordance with:

**R645-301-521.165,** The Permittee must provide a commitment in the plan to update Plate 2-2 immediately after construction of the new stockpiles (within 6 months of stockpile creation). [PWB]

**R645-301-553.252,** The plan must describe a source of suitable substitute topsoil to augment final reclamation coverage over the refuse to a depth of four feet. [PWB]

**R645-301-356,** •To validate the test plot design, the Permittee must include a Revised Universal Soil Loss Equation (RUSLE) evaluation of the varying depths of soil placement, extrapolating the slope length parameter to the full extent of the pile. •Visual observation of the test plots for rillying and gullying must be included in the soil evaluations conducted in years 3 and 6 as described in the monitoring schedule. [PWB]

## HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

**Analysis:**

**Acid- and Toxic-Forming Materials and Underground Development Waste**

Refuse Site [08/11/05]

The plan indicates that for one grab sample will be taken for every ton (5,000 $yd^3$) hauled to the waste rock site. The analytical parameters are described in section 536.200 of the Waste Rock Amendment Volume.

Information from previous grab samples (taken from every 2,000 $yd^3$ from December 2004 through March 2005) was included in RA Attachment 5-4. According to this information, the refuse is sandy in texture, about 50 - 70% carbon with a neutral pH, low EC values (less than 3.0 mmhos/cm), low SAR (less than 2) and very little carbonate content. Approximately one third of the samples were acid forming. Waste hauled from Pace Canyon (Appendix 2-4) is also acid forming, with a portion of the waste represented by Pyritic Sulfur Acid Base Potential (P.S. ABP) value of -25.1. There are no concerns about boron or selenium. In contrast, the subsoil is loamy, pH 7.4 with an SAR of 10 and lots of neutralizing power (carbonate content), see lab analysis of subsoil received in January 2005, document in the incoming folder (M: drive).

**Findings:**

The information provided meets the regulatory requirements of this section.

# RECLAMATION PLAN

## TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

**Analysis:**

Refuse Site [05/05/05]

**Soil Redistribution**

The refuse site will receive four feet of cover, but the Permittee has developed test plots to demonstrate the adequacy of lesser cover (Section 242.100).

**Soil Nutrients and Amendments**

Soil nutrients and amendments will be applied to the redistributed soils based on analyses of samples collected from the stockpiled topsoil (Section 243).

**Soil Stabilization**

Soil stabilization techniques include ripping the subsoil into the refuse, and gouging all slopes after topsoil application (section 242.200); 1 Ton/ac hay will be worked into the surface with gouging and the seeded surface will receive hydromulch (Section 341.200).

**Findings:**

The information provided meets the regulatory requirements of this section.

## STABILIZATION OF SURFACE AREAS

Regulatory Reference: 30 CFR Sec. 817.95; R645-301-244.

**Analysis:**

Refuse Site [05/05/05]

The steepness of the refuse slopes must be reduced at their base, providing a concave slope.

The refuse will be ripped prior to soil placement and the soil will be left rough as described in Section 242.200. Basins 18 inches deep will be gouged into the surface to trap moisture and seed. Locations of gouging, mulching and seeding are shown on RA Plate 5-2.

Extreme roughening is listed as one possible treatment for final reclamation on p 2-40. Also, it is shown on RA Plate 5-2 as a main treatment for contemporaneous reclamation of the site during operations. Final reclamation treatments: topsoil depths, hay, gouged, mulched and seeded areas are described in Chapter 2. The extents of the reclaimed area are illustrated on Plate 5-6.

**Findings:**

The information provided does not meet the requirements for Soil Stabilization at the Refuse site. Prior to approval, the Permittee must provide the following information, in accordance with:

**R645-301-553.140,** The plan must indicate that the steepness of the refuse slopes will be reduced at their base, providing a concave slope. [PWB]

## BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

**Analysis:**

### Determination of Bond Amount

The bond must be based upon four feet of cover for the waste, not the 2.5 ft of cover described in RA Attachment 2-2.

**Findings:**

Information provided in the proposed amendment is not considered adequate to meet the requirements of this section. Before approval, the Permittee must provide the following in accordance with:

**R645-301-830.140**, •The bond must be based upon four feet of cover for the waste, not the 2.5 ft of cover described in RA Attachment 2-2. [PWB]

**RECOMMENDATIONS:**

Further information has been requested. Approval is not recommended at this time.

O:\007039.DUG\FINAL\WG2156\pwb2156.doc